National Transportation Safety Board
Washington, DC 20594

Brief of Accident

Adopted 03/30/2005

DEN03FA138
File No. 17414 | 08/04/2003 | Yellowstone Nat, WY | Aircraft Reg No. N258Y | Time (Local): 18:35 MDT

Make/Model:	Wright / Hughes 1-B
Engine Make/Model:	Pratt & Whitney / R-1535-11
Aircraft Damage:	Destroyed
Number of Engines:	1
Operating Certificate(s):	None
Type of Flight Operation:	Personal
Reg. Flight Conducted Under:	Part 91: General Aviation

	Fatal	Serious	Minor/None
Crew	1	0	0
Pass	0	0	0

Last Depart. Point:	Gillette, WY
Destination:	Eugene, OR
Airport Proximity:	Off Airport/Airstrip

Condition of Light:	Day
Weather Info Src:	Weather Observation Facility
Basic Weather:	Visual Conditions
Lowest Ceiling:	4000 Ft. AGL, Broken
Visibility:	20.00 SM
Wind Dir/Speed:	160 / 008 Kts
Temperature (°C):	22
Precip/Obscuration:	None / None

Pilot-in-Command Age: 53

Certificate(s)/Rating(s)
Private; Single-engine Land
Instrument Ratings
None

Flight Time (Hours)

Total All Aircraft:	2500
Last 90 Days:	Unk/Nr
Total Make/Model:	Unk/Nr
Total Instrument Time:	UnK/Nr

Several witnesses at Yellowstone National Park's Midway Geyser basin area reported seeing the airplane approaching them at a "low altitude" from the southeast. The airplane was quiet, and was observed gliding with its wings tipping back and forth. Next, it was observed to corkscrew, or spiral to the ground. The airplane's propeller was a highly modified constant speed Hamilton Standard 12D40 hub. Neither of the two 7 pound counterweights were found at the accident site. Examination of the #2 counterweight bracket revealed a fatigue crack at the proximal end of the counterweight slot. The propeller's shim plates exhibited impact signatures of the two blades indicating an angular difference of 10 degrees. The propeller's cylinder was crushed on one side, locking the piston inside the cylinder; the location of the piston inside the cylinder correlated to a blade angle of 34.9 degrees. If a propeller counterweight had separated in flight, aerodynamic forces would have driven the blade towards fine pitch or low blade angle. The blade's rotation would be limited to the low blade angle, of 24 degrees, by the remaining portion of its counterweight bracket arm which would contact and be stopped by the propellers barrel. If one blade was at the low blade angle of 24 degrees, the measured angular difference of 10 degrees, would indicate that the other blade was at an angle of 34 degrees. The agreement between this derived blade angle of 34 degrees and the piston position of 34.9 degrees suggests that one blade was still slaved to its counterweight at the time of impact and one blade was not.

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: CRUISE - NORMAL

Findings
1. (C) PROPELLER SYSTEM/ACCESSORIES,COUNTERWEIGHT - SEPARATION

Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: DESCENT - UNCONTROLLED

Findings
2. (C) AIRCRAFT CONTROL - NOT MAINTAINED - PILOT IN COMMAND
3. (C) STALL/SPIN - INADVERTENT - PILOT IN COMMAND

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings Legend: (C) = Cause, (F) = Factor

The National Transportation Safety Board determines the probable cause(s) of this accident as follows.
The in-flight loss of a propeller counterweight, followed by the pilot's loss of aircraft control during a forced landing attempt and subsequent inadvertent stall/spin to the ground.